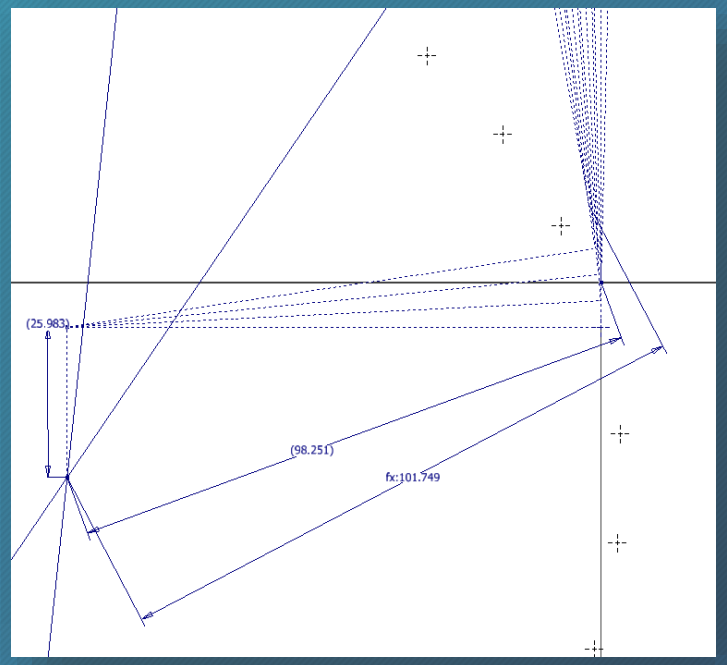
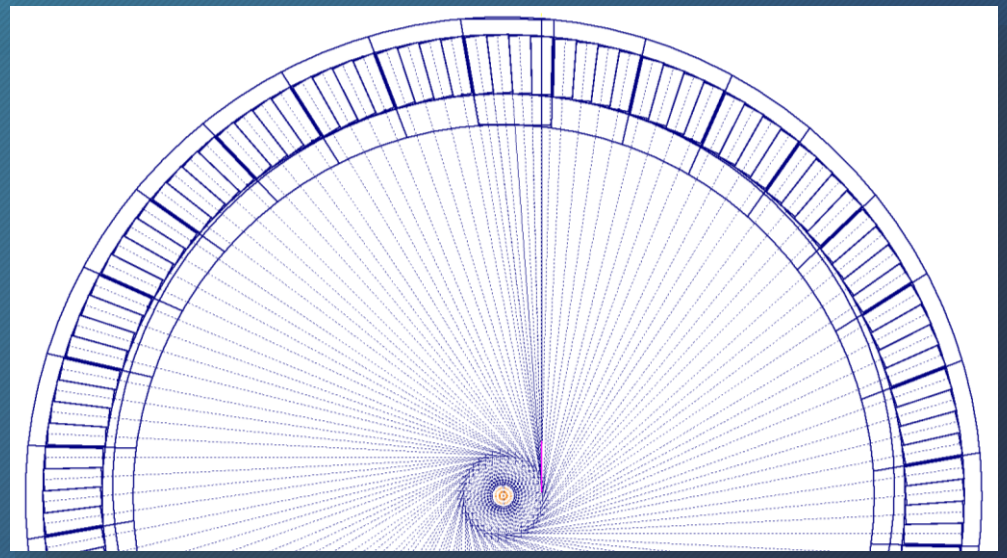
EMCal Block Design

Dan Cacace

EMCal Block Design

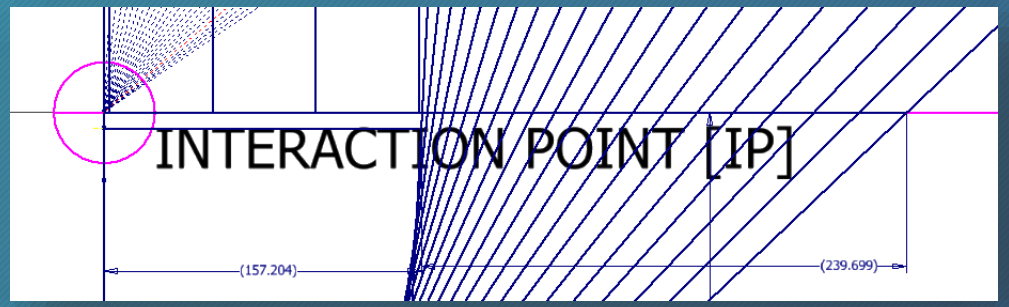
- Tilt blocks such that the focal point is ~100 mm radially from central axis.

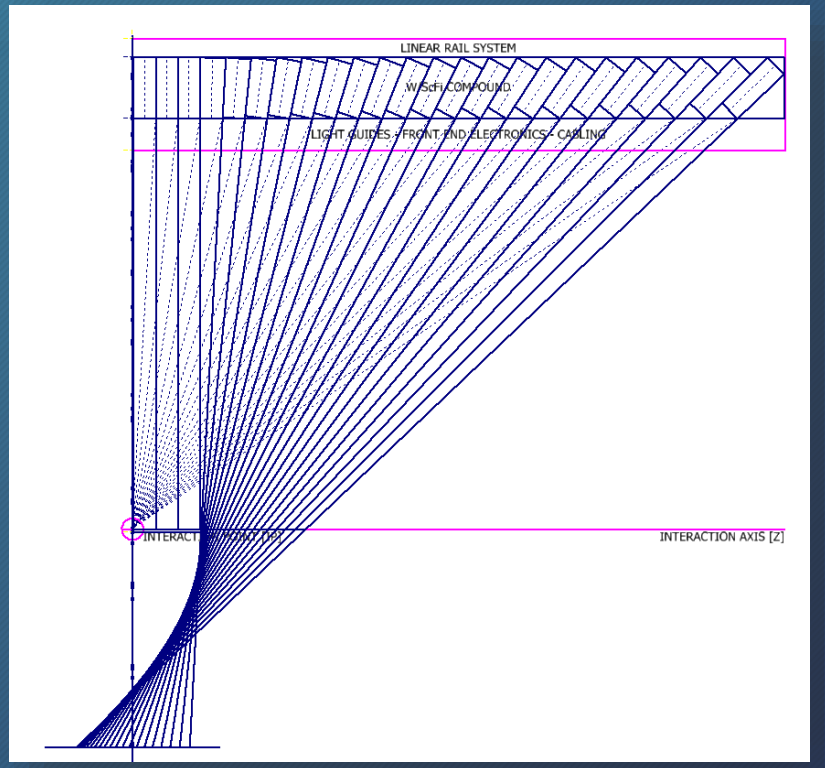




EMCal Block Design – 164 mrad Tilt

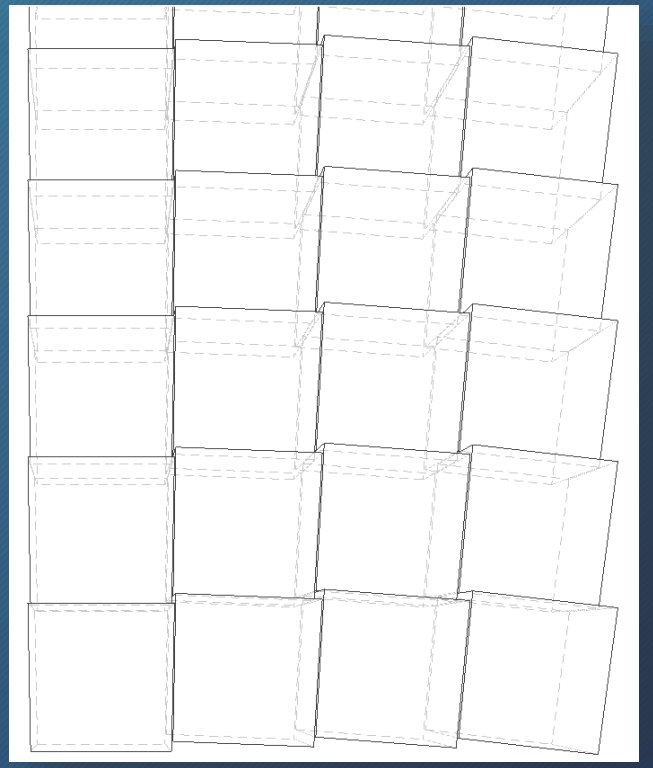
- First three blocks 1D projected.
- 22 different blocks.
- Origin Shift: 157.20 mm
- Z Coverage: 239.70 mm





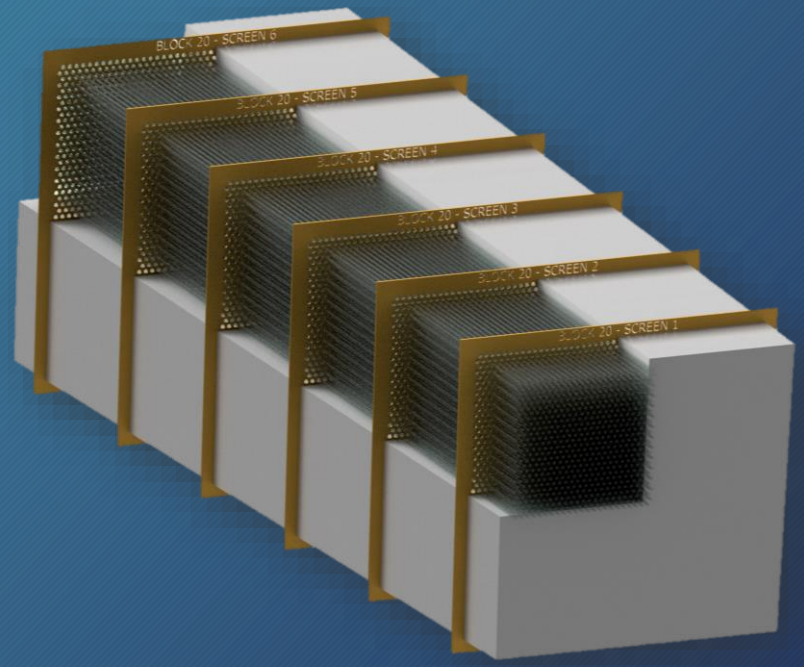
EMCal Blocks

- Sawtooth pattern within a modal.
- 164 mrad is the angle of the third (last 1D projective) block relative to the IP.



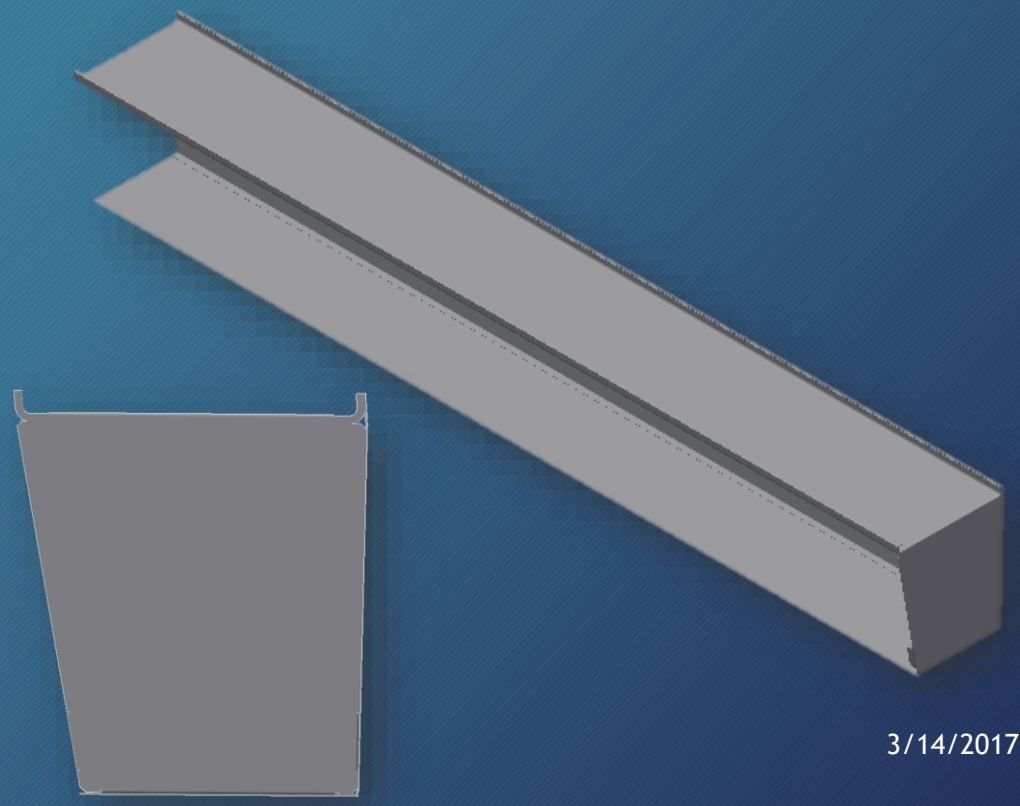
EMCal Screen Design / Fibers

- IdP – Ideal Pitch
- Gap – Screen material between closest holes with worst case tolerance.
- 46*58 = 2668 Fibers, IdP = 0.99359, GAP = 0.1256
- X 47*58 = 2726 Fibers, IdP = 0.982848, GAP = 0.1078 X
- X 48*59 = 2832 Fibers X
- 48*60 = 2880 Fibers, IdP = 0.95582575, GAP = 0.0875



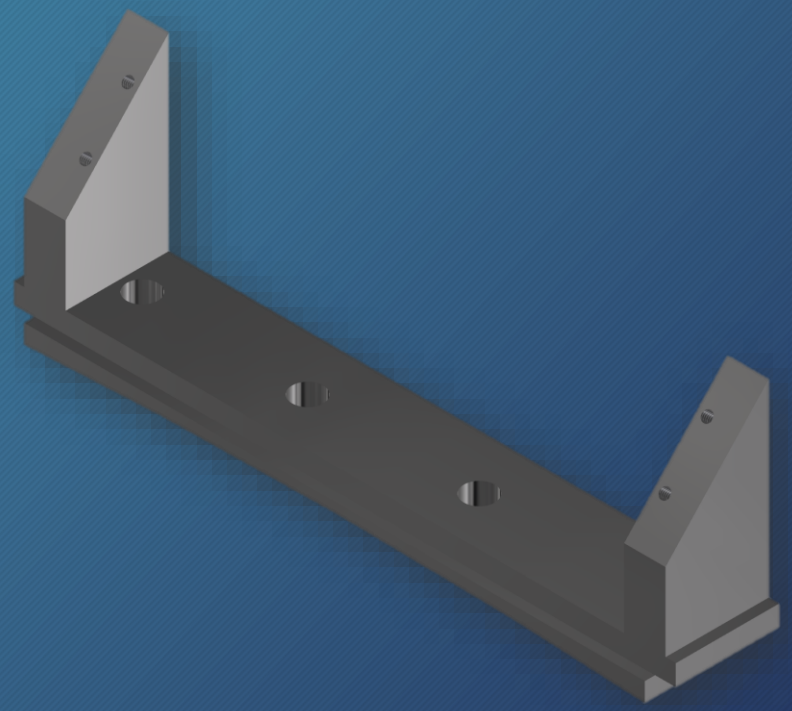
EMCal Sheet Metal Box

- 2 different (mirrored) sheet metal boxes needed:
- 2 Different Side Plates
- 4 Different Font/Back Plates
- 2 Different Strong backs
- 1 Bottom Plate
- 1 Mid Plate
- Previously only one of each type was needed.



EMCal Old Support

- Each module needs a different bracket:
- 22 3D printed parts
- 22 ¼” plates
- 44 (mirrored) braces
- Plus Hardware



EMCal Support Idea

- A few different supports:
- ~4 Sheet metal plates
- ~4 Square tubes
- Plus hardware